The Journal of

Medical Microbiology

A JOURNAL OF THE PATHOLOGICAL SOCIETY
OF GREAT BRITAIN AND IRELAND

EDITED BY

B. I. Duerden (Chairman, Cardiff)
D. C. Old (Dundee) J. G. M. Hastings (Birmingham)

EDITORIAL BOARD

S. G. B. Amyes (Edinburgh)
R. A. Barnes (Cardiff)
M. J. Corbel (Potters Bar)
D. A. Dance (Plymouth)
F. R. Falkiner (Dublin)
C. G. Gemmell (Glasgow)
D. Greenwood (Nottingham)
C. A. Hart (Liverpool)
H. Humphreys (Nottingham)
J. Z. Jordens (Oxford)
D. M. Livermore (London)
T. W. MacFarlane (Glasgow)
H. McKenzie (Aberdeen)
D. M. MacLaren (Amsterdam)
J. T. Magee (Cardiff)
R. Parton (Glasgow)
M. D. Richardson (Glasgow)
P. W. Ross (Edinburgh)
B. W. Senior (Dundee)
K. J. Towner (Nottingham)
P. J. Wilkinson (Nottingham)
R. J. Williams (Milan)
C. Wray (Weybridge)
H-K. Young (Dundee)

INTERNATIONAL ADVISORY BOARD

E. J. C. Goldstein (Los Angeles, USA)
A. Linde (Stockholm, Sweden)
J. E. McGowan Jr (Atlanta, USA)
E. Nagy (Szeged, Hungary)
S. Nakamura (Kamazawa, Japan)
T. V. Riley (Perth, Australia)
V. O. Rotimi (Jeddah, Saudi Arabia)
S. C. Sanyal (Varanasi, India)
M. Struelens (Brussels, Belgium)

GERMAN SIMS WOODHEAD
Founder of the Journal of Pathology and Bacteriology

VOLUME FORTY-TWO

Churchill Livingstone

EDINBURGH HONG KONG LONDON MADRID
NEW YORK AND TOKYO
1995

Copyright © 1995 The Pathological Society of Great Britain and Ireland.

All rights reserved. Apart from fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act, 1988, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers Churchill Livingstone, Robert Stevenson House, 1–3 Baxter's Place, Leith Walk, Edinburgh EH1 3AF, U.K., or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency Ltd, 90 Tottenham Court Road, London W1P 9HE, UK.

Typeset, printed and bound in Great Britain by Cambridge University Press, Cambridge

CONTENTS

Volume 42. No. 1—January

EDITORIAL

Astroviruses 1
Cook, N. and Myint, S.

HOST DEFENCE MECHANISMS

Free secretory component and lactoferrin of human milk inhibit the adhesion of enterotoxigenic *Escherichia coli* 3
Giugliano, L. G., Ribeiro, S. T. G., Vainstein, M. H. and Ulhoa, C. J.

Immunoglobin and non-immunoglobin components of human milk inhibit *Clostridium difficile* toxin A-receptor binding 10
Rolfe, R. D. and Song, W.

PATHOGENICITY

Studies on the genesis of *Vibrio cholerae* O139: identification of probable progenitor strains 20
Pajni, Sangeeta, Sharma, Charu, Bhasin, Navneet, Ghosh, Amit, Ramamurthy, T., Nair, G. Balakrish., Ramajayam, S., Das, Biswajit, Kar, Sudeshna, Roychowdhury, Saumya and Ghosh, R. K.

Association of *Aeromonas* spp. with travellers' diarrhoea in Finland 26
Hänninen, M. L., Salmi, S., Mattila, L., Taipalinen, R. and Siitonen, A.

Temperature-dependent protein and lipopolysaccharide expression in clinical *Aeromonas* isolates 32
Tso, M. D. and Dooley, J. S. G.

Virulence and other phenotypic characteristics of urinary isolates of cysteine-requiring *Escherichia coli* 39
McIver, C. J. and Tapsall, J. W.

No difference in enterotoxin production among *Staphylococcus aureus* strains isolated from blood compared with strains isolated from healthy carriers 43
Røder, B. L., Eriksen, N. H. R., Nielsen, L. P., Slotsbjerg, T., Rosdahl, Vibeke T. and Espersen, F.

In-vitro hepatotoxic factor in *Helicobacter hepaticus, H. pylori* and other *Helicobacter* species 48
Taylor, N. S., Fox, J. G. and Yan, L.

VIRAL VACCINES

Comparative antibody responses and protection in mice immunised by oral or parenteral routes with influenza virus subunit antigens in aqueous form or incorporated into ISCOMs 53
Ghazi, H. O., Potter, C. W., Smith, T. L. and Jennings, R.

ANTIMICROBIAL AGENTS

Killing of methicillin-resistant *Staphylococcus aureus* by low-power laser light 62
Wilson, M. and Yianni, C.

ORAL MICROBIOLOGY

Identification of pioneer viridans streptococci in the oral cavity of human neonates 67
Pearce, Cheryl, Bowden, G. H., Evans, Mishell, Fitzimmons, S. P., Johnson, Jolene, Sheridan, M. J., Wientzen, R. and Cole, M. F.

ANNOUNCEMENT 73

BOOKS RECEIVED 74

Volume 42. No. 2—February

EDITORIAL

Invasive *Haemophilus influenzae* disease: the impact of Hib immunisation 75
Slack, M. P. E.

CLINICAL INFECTIONS

Clostridial infection in children 78
Brook, I.

BACTERIAL PATHOGENICITY

Characterisation of a haemolysin related to Vp-TDH produced by a Kanagawa phenomenon-negative clinical isolate of *Vibrio parahaemolyticus* 83
Nagayama, K., Yamamoto, K., Mitawani, T. and Honda, T.

Superantigenic exotoxin production by isolates of *Staphylococcus aureus* from Kawasaki syndrome patients and age-matched control children 91
Todome, Y., Ohkuni, H., Mizuse, M., Okibayashi, F., Ohtani, N., Suzuki, H., Song, C., Igarashi, H., Harada, K., Sakurai, S. and Kotani, S.

Detection by PCR and analysis of the distribution of a fibronectin-binding protein gene (*fbn*) among staphylococcal isolates 96
Minhas, T., Ludlam, H. A., Wilks, M. and Tabaqchali, S.

A re-appraisal of the biological activity of bacteroides LPS 102
Delahooke, D. M., Barclay, G. R. and Poxton, I. R.

CHARACTERISATION AND TYPING OF MICRO-ORGANISMS

Phenotypic characterisation of *Acinetobacter* strains of 13 DNA-DNA hybridisation groups by means of the Biolog system 113
Bernards, Alexandra T., Dijkshoorn, L., Van der Toorn, J., Bochner, B. R. and Van Boven, C. P. A.

Differences exist in the immunoblotting profiles of cyst and trophozoite antigens of *Pneumocystis carinii* 120
Chatterton, J. M. W., Joss, A. W. L., Pennington, T. H. and Ho-Yen, D. O.

Typing of *Staphylococcus aureus* colonising human nasal carriers by pulsed-field gel electrophoresis 127
Hu, L., Umeda, A., Kondo, S. and Amako, K.

HOST RESPONSE TO INFECTION

***Brucella abortus* causes an accelerated repopulation of the spleen and liver of mice by macrophages after their liposome-mediated depletion** 133
Buiting, Antoinette M. J., De Rover, Zegerine and Van Rooijen, Nico

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND 141

BOOKS RECEIVED 152

Volume 42. No. 3—March

EDITORIAL

Transmissible spongiform encephalopathies 153
Hart, C. A.

CLINICAL MICROBIOLOGY

Chronic bacteraemia due to *Staphylococcus epidermidis* after bone marrow transplantation 156
Lina, B., Forey, F., Tigaud, J. D. and Fleurette, J.

Comparison of streptococci of serological group B isolated from healthy carriers and active disease in Chile 161
Lämmler, Ch., Schwarz, S., Wibawan, I. W. T., Ott, E., Bopp, V. and Martinez-Tagle, A.

MICROBIAL PATHOGENICITY

Mapping of murine Th1 and Th2 helper T-cell epitopes on fimbriae from *Porphyromonas gingivalis* 165
Ogawa, T., Uchida, H. and Yasuda, K.

Possible virulence factors involved in bacteraemia caused by *Aeromonas hydrophila* 171
Vadivelu, J., Puthucheary, S. D., Phipps, M. and Chee, Y. W.

Detection of haemolytic activity of campylobacters by agarose haemolysis and microplate assay 175
Tay, Sun Tee, Devi, Shamala, Puthucheary, Savithri D. and Kautner, Ingrid M.

MODELS OF INFECTION

Influence of various immunosuppressive agents on the occurrence of endogenous bacteraemia in mice 181
Hirakata, Y., Furuya, N., Matsumoto, T., Tateda, K. and Yamaguchi, K.

Characteristics of invasion of HEp-2 cells by *Providencia alcalifaciens* 186
Albert, M. J., Ansaruzzaman, M., Bhuiyan, N. A., Neogi, P. K. B. and Faruque, A. S. G.

Replication of *Chlamydia trachomatis* and *C. pneumoniae* in the human monocyte cell line U-937 191
Numazaki, K., Suzuki, K. and Chiba, S.

HOST RESPONSE TO INFECTION

The chemotactic response of blood neutrophils and monocytes to strains of *Escherichia coli* with different virulence characteristics 196
Beeken, W., Fabian, J. and Fenwick, J.

Immunogenic properties of *Brucella melitensis* cell-wall fractions in BALB/c mice 200
Cloeckaert, A., Jacques, I., Limet, J. N. and Dubray, G.

NEW DIAGNOSTIC TESTS

The use of a nested polymerase chain reaction for detecting *Pneumocystis carinii* from lung and blood in rat and human infection 209
Evans, R., Joss, A. W. L., Pennington, T. H. and Ho-Yen, D. O.

ANTIMICROBIAL RESISTANCE

Mechanisms of 4-quinolone resistance in quinolone-resistant and methicillin-resistant *Staphylococcus aureus* isolates from Japan and China 214
Tanaka, M., Zhang, Y. X., Ishida, H., Akasaka, T., Sato, K. and Hayakawa, I.

Mixed morphotype testing of *Pseudomonas aeruginosa* cultures from cystic fibrosis patients 220
Wolter, J. M., Kotsiou, G. and McCormack, J. G.

MYCOLOGY

Non-opsonic phagocytosis of *Trichophyton mentagrophytes* arthroconidia by human neutrophils *in vitro* 225
Richardson, M. D. and Bell, Yvonne

BOOKS RECEIVED 230

Volume 42. No. 4—April

EDITORIAL

Laboratory diagnosis of *Pneumocystis carinii* pneumonia 231
Ho-Yen, D. O.

REVIEW ARTICLE

Feline immunodeficiency virus infection—a model for HIV and AIDS? 233
Bennett, M. and Hart, C. A.

EPIDEMIOLOGY

Epidemiological data on *Staphylococcus aureus* strains producing synergohymenotropic toxins 237
Prevost, G., Couppie, P., Prevost, P., Gayet, S., Petiau, P., Cribier, B., Monteil, H. and Piemont, Y.

Distribution of serovariants of group B streptococci in isolates from England and Norway 246
Kvam, A. I., Efstratiou, A., Bevanger, L., Cookson, B. D., Marticorena, I. F., George, R. C. and Maeland, J. A.

BACTERIAL CHARACTERISATION

A comparative study of the properties of *Vibrio cholerae* O139, O1 and other non-O1 strains 251
Nandy, R. K., Sengupta, T. K., Mukhopadhyay, S. and Ghose, A. C.

Molecular characterisation of *Escherichia coli* O157:H7 isolates by pulsed-field gel electrophoresis and plasmid DNA analysis 258
Meng, J., Zhao, S., Zhao, T. and Doyle, M. P.

BACTERIAL VIRULENCE

Virulent non-capsulate *Yersinia pestis* variants constructed by insertion mutagenesis 264
Drozdov, I. G., Anisimov, A. P., Samoilova, S. V., Yezhov, I. N., Yeremin, S. A., Karlyshev, A. V., Krasilnikova, V. M. and Kravchenko, V. I.

Effect of monensin on the invasiveness and multiplication of *Legionella pneumophila* 269
Goldoni, P., Castellani Pastoris, M., Cattani, L., Peluso, C., Sinibaldi, L. and Orsi, N.

The effects of unsaturated fatty acids on *Helicobacter pylori in vitro* 276
Khulusi, S., Ahmed, H. A., Patel, P., Mendall, M. A. and Northfield, T. C.

ANTIMICROBIAL RESISTANCE

An 8-year study of resistance to amikacin in gram-negative bacilli isolates from patients with nosocomial infection at one hospital in Argentina 283
García, D. C., Woloj, G. M., Piñeiro, S., Sordelli, D. O. and Kaufman, S.

MEDICAL MYCOLOGY

Various *Candida* and *Torulopsis* species differ in their ability to induce the production of C3, factor B and granulocyte-macrophage colony-stimulating factor (GM-CSF) in human monocyte cultures 291
Høgåsen, A. K. M., Abrahamsen, T. G. and Gaustad, P.

Virulence of *Aspergillus fumigatus* strains investigated by random amplified polymorphic DNA analysis 299
Mondon, P., Thélu, J., Lebeau, B., Ambroise-Thomas, P. and Grillot, R.

Biochemical characterisation of human isolates of *Blastocystis hominis* 304
Mansour, N. S., Mikhail, E. M., El Masry, N. A., Sabry, A. G. and Mohareb, E. W.

BOOKS RECEIVED 308

Volume 42. No. 5—May

EDITORIAL

Measuring pre- and post-dose vancomycin levels–time for a change? 309
Catchpole, C. and Hastings, J. G. M.

THE 16TH C. L. OAKLEY LECTURE

Virulence of *Campylobacter* species: a molecular genetic approach 312
Ketley, J.

IDENTIFICATION AND TYPING OF BACTERIA

Correlation of six methods for typing nosocomial isolates of *Acinetobacter baumannii* 328
Marcos, M. A., Jimenez De Anta, M. T. and Vila, J.

Random amplified polymorphic DNA fingerprinting for rapid identification of leptospiras of serogroup Sejroe 336
Gerritsen, M. A., Smits, M. A. and Olyhoek, T.

CLINICAL MICROBIOLOGY

***Prevotella* and *Porphyromonas spp.* in infections in children** 340
Brook, I.

MICROBIAL PATHOGENICITY

Cytokine stimulation during *Salmonella typhimurium* sepsis in Ity^S mice 348
Jotwani, R., Tanaka, Y., Watanabe, K., Tanaka, K., Kato, N. and Ueno, K.

Experimental infection of human nasal mucosal explants with *Neisseria meningitidis* 353
Read, R. C., Fox, A., Miller, K., Gray, T., Jones, N., Borrow, R., Jones, D. M. and Finch, R. G.

ANTIMICROBIAL AGENTS

Post-antibiotic effect of azithromycin and erythromycin on streptococcal susceptibility to phagocytosis 362
Ramadan, M. A., Tawfik, A. F., Shibl, A. M. and Gemmell, C. G.

VIROLOGY

Detection and analysis of hepatitis C virus by a combined RT-PCR method: variation in the 5′ non-coding region of viral genome 367
Karachristos, A., Linardopoulos, S., Ergazaki, M. and Spandidos, D. A.

MYCOLOGY

The genotypic relationship of *Candida albicans* strains isolated from the oral cavity of patients with denture stomatitis 372
Mathaba, L. T., Davies, G. and Warmington, J. R.

ANNOUNCEMENTS 380

Volume 42. No. 6—June

EDITORIAL

Bubonic plague: doubts and diagnoses 383
Twigg, G.

MICROBIAL PATHOGENICITY

Modulatory action of *Helicobacter pylori* on histamine release from mast cells and basophils *in vitro* 386
Lutton, Deborah, A., Bamford, Kathleen B., O'Loughlin, B. and Ennis, Madeleine

Evidence of *Pneumocystis carinii* in cell line cultures infected with peripheral blood mononuclear cells isolated from AIDS patients with *P. carinii pneumonia* 394
Contini, C., Mastrantoni, S., Romani, R., Cultrera, R. and Delia, S.

CHARACTERISATION OF BACTERIA

Presence of lysogenic phage in the outbreak strains of *Vibrio cholerae* O139 399
Mitra, S. N., Kar, S., Ghosh, R. K., Pajni, S. and Ghosh, A.

Genotyping of Shiga-like toxin genes in non-O157 *Escherichia coli* strains associated with haemolytic uraemic syndrome 404
Rüssmann, H., Kothe, E., Schmidt, H., Franke, S., Harmsen, D., Caprioli, A. and Karch, H.

VIROLOGY

Human immunodeficiency virus type-1 can be detected in monocytes by polymerase chain reaction 411
Quiros, Eugenia, Garcia, F., Maroto, Maria Del Carmen, Bernal, Maria Del Carmen, Cabezas, Teresa and Piedrola, G.

ANTIMICROBIAL AGENTS

Electronmicroscopic investigation of the effects of biocides on *Pseudomonas aeruginosa* PAO bacteriophage F116 415
Maillard, J. Y., Hann, A. C., Beggs, T. S., Day, M. J., Hudson, R. A. and Russell, A. D.

Antibiotic susceptibility of *Mycoplasma fermentans* strains from various sources and the development of resistance to aminoglycosides *in vitro* 421
Hannan, P. C. T.

Back mutations to the TEM-1 β-lactamase from TRC-1 lead to restored sensitivity to clavulanic acid 429
Thomson, C. J. and Amyes, S. G. B.

MODELS OF INFECTION

Experimental Legionnaires' disease in SCID-Beige mice reconstituted with human leucocytes 433
Williams, A., McBride, B. W., Hall, G., Fitzgeorge, R. B. and Farrar, G. H.

EPIDEMIOLOGICAL TYPING

Identification and typing pyogenic streptococci by enzyme electrophoretic polymorphism 442
Bert, F., Picard, B., Lambert-Zechovsky, N. and Goullet, P.

ANNOUNCEMENTS 452

BOOKS RECEIVED 454

INDEX SUBJECTS 455

INDEX AUTHORS 459

VOLUME CONTENTS